

AMERICAN NATIONAL STANDARD

**Acoustics - Measurement of Airborne
Noise Emitted by Information Technology and
Telecommunications Equipment -
Part 2: Declaration of Noise Emission Levels**

Secretariat:

Acoustical Society of America

Approved on August 17, 2011 by:

American National Standards Institute, Inc.

Abstract

This Standard specifies procedure and requirements of the verification of noise emission levels of information technology and telecommunications equipment. Hitherto, a wide variety of methods have been applied by individual manufacturers and users to satisfy particular equipment or application needs. These diverse practices have, in many cases, made comparison of noise emission difficult. This Standard unifies the procedure and requirements that make the declared noise emission levels consistent for information technology and telecommunications equipment.

This Standard is technically identical to parts of ECMA-109 (2010).

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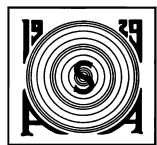
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Foreword

[This Foreword is for information only and is not a part of the American National Standard ANSI/ASA S12.10-2011/Part 2 American National Standard Acoustics – Measurement of Airborne Noise Emitted by Information Technology and Telecommunications Equipment – Part 2: Declaration of Noise Emission Levels.]

This standard comprises a part of a group of definitions, standards, and specifications for use in noise. It was developed and approved by Accredited Standards Committee S12 Noise, under its approved operating procedures. Those procedures have been accredited by the American National Standards Institute (ANSI). The Scope of Accredited Standards Committee S12 is as follows:

Standards, specifications, and terminology in the field of acoustical noise pertaining to methods of measurement, evaluation, and control, including biological safety, tolerance, and comfort, and physical acoustics as related to environmental and occupational noise.

This document adopts, with permission, parts of the 5th Edition of ECMA-109 (2010).

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Introduction

In order for equipment noise emission data to be useful, uniform methods are necessary for the following purposes:

- Measurement of noise emission values

ANSI/ASA S12.10/Part 1 specifies procedures for measuring sound power and pressure levels of information technology and telecommunications equipment based on the basic noise emission standards ANSI/ASA S12.51 / ISO 3741, ANSI/ASA S12.54 / ISO 3744, ANSI/ASA S12.55 / ISO 3745 and ISO 11201.

- Determination of the noise emission values to be declared

ANSI/ASA S12.10/Part 2 specifies procedures for determination and declaration of noise emission levels of information technology and telecommunications equipment following guidelines of the basic standard ISO 4871 and statistical methods of ISO 7574 series.

- Presentation of declared noise emission values

For the presentation of declared noise emission values, it is of prime importance to declare A-weighted sound power levels, L_{WA} . It is recognized, however, that users still desire information on A-weighted emission sound pressure levels, L_{pA} . Therefore, this Standard specifies that both quantities shall be declared. In the preparation of this Standard divergences of opinion have been found among various national and international organizations as to the most useful way of presenting noise emission values. In order to avoid any misunderstanding between presentation of sound power levels in decibels re 1 pW and emission sound pressure levels in decibels re 20 μ Pa, this Standard expresses sound power level values in bels and emission sound pressure level values in decibels, to alleviate the divergences of opinion mentioned.

As an option, methods for determination and presentation of subjective characteristics of noise emission are presented in Annex C.

- Verification of declared noise emission values

ANSI/ASA S12.10/Part 2 specifies the verification procedure and requirements of declared noise emission values of information technology and telecommunications equipment following the basic methods defined in ISO 7574. The verification procedure and requirements specified in this standard are restricted to verifying declared A-weighted sound power levels, L_{Wad} , only.

The reasons for using bels for declared A-weighted sound power levels are:

1. To avoid user confusion

In this Standard the A-weighted sound power level is the primary descriptor for the noise emission levels. The A-weighted emission sound pressure level is the secondary, complementary descriptor. Many manufacturers and users of information technology and telecommunications equipment have historically used A-weighted emission sound pressure levels in decibels. Since customers want both sound power and emission sound pressure levels, this Standard utilizes both quantities. Without including reference values (*i.e.*, 1 pW and 20 μ Pa), expressing both declared sound power levels and declared emission sound pressure levels in decibels tends to cause confusion. To distinguish the two, this Standard expresses sound power level values in bels where a bel is 10 decibels re 1 pW, and expresses emission sound pressure level values in decibels re 20 μ Pa.